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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/772,989	01/31/2001	Hideki Morishima	2369.12210	2633

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NEW YORK, NY 10112

EXAMINER
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CHANG, AUDREY Y

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 07/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/772,989

Applicant(s)

MORISHIMA ET AL.

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 May 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 and 7-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 12.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on May 12, 2003 has been entered.
2. This Office Action is also in response to applicant amendment filed on November 15, 2002, which has been entered as paper number 11.
3. By this amendment, the applicant has amended claim 1 and has newly added claims 17-22.
4. Claims 1-5, and 7-22 remain pending in this application.

### *Claim Objections*

5. **Claims 1-5 and 7-22 are objected to because of the following informalities:**

(1). The phrase "an elementary optical element forming one period in the horizontal and vertical directions ... has optical action ... different from each other" as recited in claims 1 and 15 is confusing and indefinite since it is not clear if the elementary optical element referred here is the same one for forming the periodicity in both the vertical and horizontal directions or not. As disclosed in the specification, the second optical element comprises two lenticular lenses one has periodicity in horizontal direction and one has periodicity in the vertical direction. The elementary optical element in the horizontal lenticular lens and in the vertical lenticular lens, *respectively*, has different optical power from each other. Also it is not

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clear what does it mean by “an elementary optical element forming one period“. It is not clear one period of what.

(2). The phrase “before and after the mask pattern” recited in claim 15 is confusing and indefinite since it is not clear what is considered to be “before” and what is considered to be “after”.

(3). The phrase “an optical power ... in horizontal plane is equivalent to a vertical lenticular lens” recited in claim 17 is confusing and indefinite since it is not clear what is the considered to be “*equivalent to*”. It is not clear if the second optical member comprises a vertical lenticular lens or not. It is not clear if the vertical lenticular lens is or is not part of the claim.

(4). The phrase “the *cycle* of vertical lenticular lens” recited in claim 17 is confusing and indefinite since it is not clear what is considered to be the “cycle”. In the art, the individual lens element of the lenticular lens array is referred as the “lenticles”.

(5). The phrase “the optical power of the second optical member in a vertical plane is equivalent to a horizontal direction” recited in claim 18 is confusing, wrong and indefinite. It is completely not clear how can an optical power be equivalent to a direction. The scope of the claim is completely not clear.

(6). The phrase “the horizontal lenticular lens” recited in claim 19 is confusing and indefinite since it lacks proper antecedent basis from its based claim.

(7). The phrase “having an optical power equivalent to an optical power in a horizontal plane” recited in claim 21 is confusing and indefinite. It simply not clear what is being described here. Also it is not clear if the optical power recited here is the same optical power recited in its based claims. Again it is not clear what is considered to be “equivalent”.

The applicant is respectfully reminded that claims 17-22 are very confusing and contain a lot of languages that are indefinite and lacking logic which makes the claim languages very hard to understand and makes the scopes of the claims unclear. **Appropriate corrections are required.**

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Ezra et al (PN. 5,703,717) in view of the patent issued to Mashitani et al (PN. 5,663,831).**

Ezra et al teaches a *three dimensional display apparatus* that is comprised of a *spatial light modulator* (23, Figure 7), serves as the *image display element* for displaying a *spatially multiplexed 2D* images having stripes of image for different view points, a *lenticular screen* (42) placed in front of the image display element and an *angular amplifying element* (33) having a *first lenticular lens array* (34) for focusing the image at a *plane diffuser* (35) and a *second lenticular lens array* (36) for converging the image light passes through the plane diffuser to *different viewing locations*, (please see Figures 4 and 7, columns 4-5). The *lenticular screen* (42) and the *first lenticular lens array* (34) together serve as the *second optical system* that condenses the stripe image to the plane diffuser and the *second lenticular lens array* (36) serves as the *first optical system* for directing the image light to viewing zone. The distance between the lenticular lens array (34) and the diffuser (35) is equal to the focal length of the lenticular lens array (34), (please see Figure 4). The lenticular lens array (34) is a vertical lenticular lens having periodic arrangement in the horizontal plane, (i.e. the plane of the page of Figure 4). The lenticular screen (42) implicitly forms the images of pixels on the plane diffuser in order for the three dimensional display apparatus to be operable. Ezra et al teaches that the stripes of images for different view points are displayed on the spatial light modulator in an *interlaced* manner.

This reference has met all the limitations of the claims with the exception that it does not teach explicitly that the plane diffuser has a mask pattern of openings and shields. However it is known in the art that a plane diffuser that placed in front of the display element essentially has a mask pattern of openings and shields as demonstrated by the teachings of **Mashitani et al** wherein a diffusing plate (3, Figure 5) has a mask pattern of black regions and opening regions (i.e. images forming regions). It would then have been obvious to one skilled in the art to make the plane diffuser of Ezra et al with mask pattern for the benefit of blocking unwanted light from the display to the observer, which therefore improves the image quality.

The scopes of claims 18-21 are confusing and not well defined for the reasons stated above, they therefore cannot be further examined.

#### *Allowable Subject Matter*

8. The following is an examiner's statement of reasons for allowance: of the prior art references considered, none has disclosed a stereoscopic image display method that is comprised of the step of guiding image light from an image display element by a *second* optical system, placed in front of the display element, to a *mask* member having a mask pattern, and the step of converging the image light passes through the mask member by a *first* optical system to an observation surface. The second optical system has predetermined periodic structure in *each of horizontal and vertical* directions, *respectively*, in the order from the light incident side, wherein the second optical system comprises a *plurality of elementary optical elements* forming the periodic structures in the horizontal and vertical directions *respectively* and has an optical action in the horizontal and vertical directions, *respectively*, that are different from each other.

#### *Double Patenting*

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9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. **Claims 1-5, and 7-22 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-5, 13, 15-25, 27-28, 29-33 and 35-38 of copending Application No. 09/836,368.**

This is a provisional obviousness-type double patenting rejection.

The instant application and the co-pending application both disclose a stereoscopic image display that is comprised of an image display device for displaying synthesized images, a second optical system for directing and forming the images from the display device on light transmitting sections and light shielding second formed within an optical modulator or on a mask (having opening and shielding regions for passing or shielding the image light), and a first optical system for collecting the image light from the light transmitting sections to an observation surface, (please see Figure 1 of the instant application and Figure 1 of the co-pending application).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

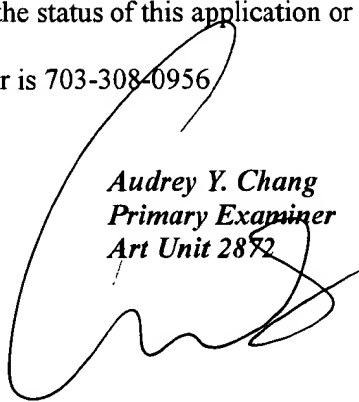
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 703-305-0024. The fax phone numbers for the organization where this

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application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956

*Audrey Y. Chang*  
*Primary Examiner*  
*Art Unit 2872*



A. Chang, Ph.D.  
July 22, 2003